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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/593,118	06/13/2000	James Howard Drew	99-836	5555

32127 7590 06/10/2003

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EXAMINER

ROBINSON BOYCE, AKIBA K

ART UNIT PAPER NUMBER

3623

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/593,118

Applicant(s)

DREW ET AL.

Examiner

Akiba K Robinson-Boyce

Art Unit

3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 June 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Status of Claims***

1. The following is a first office action. This action is non-final. Claims 1-60 are pending in this application and have been examined on the merits.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 17, 32 and 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 17, 32 and 47 contain the formula  $ER \cdot I - Eri(0) = GLTV$ . This formula needs to be further defined in the claims so that one reading these claims would have a better understanding of how the formula is used to calculate the gain in lifetime value. Because this formula is unclear, the use of this formula in these claims makes them indefinite.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Art Unit: 3623

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a non-statutory subject matter.

The basis of this rejection is set forth in a two-prong test of :

(1) whether the invention is within the technological arts; and

(2) whether the invention produces a useful, concrete, and tangible result.

For a claimed invention to be statutory, the claimed invention must be within the technological arts. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural phenomena that do not apply, involve, use, or advance the technological arts fail to promote the "progress of science and the useful art" (i.e., the physical sciences as opposed to social sciences, for example) and therefore are found to be non-statutory subject matter. For a process claim, the recited process must somehow apply, involve, use, or advance the technological arts.

In the present case, claims 1-15 are directed to a method for evaluating customer value to guide loyalty and retention programs. Independent claim 1 recites the steps of "calculating an individual customer's tenure...", "generating a hazard function...", "calculating a gain in lifetime value...", and "determining a focus for a loyalty and retention program...". These steps represent mere ideas in the abstract since they do not involve physical and/or computer means to carry them out. Since no physical and/or computer means are used to carry out the steps of the invention, independent claim 1 and the claims that depend from them are therefore found to be non-statutory subject matter.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 4, 13, 16, 18, 19, 28, 31, 33, 34, 43, 46, 48, 49, 58 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Bank Marketing International article entitled "Are your customers profitable?"

As per clams 1, 16, 31 and 46, Bank Marketing international's article discloses:

Calculating an individual customer's tenure based on attributes relating to a plurality of current customer accounts, /a calculating module.../means for calculating...(page 2, paragraph 6, lines 1-3, paragraph 13, lines 1-2, [customers being grouped/segmented]and identifying the sales of each product by tenure));

Generating a hazard function for each of a plurality of new customers to determine probability of churn based on the individual customer's tenure, /a generating module.../means for generating...(Page 2, paragraph 14, lines 1-3, [predicting the length of time a customer is likely to stay with it]).

Calculating a gain in lifetime value for each of the plurality of new customers, (Page 2, paragraph 11, lines 1-3, paragraph 12, lines 1-3,/a calculating module/means for calculating... [looking at estimated lifetime value]);

And determining a focus for a loyalty and retention program based on at least one of the hazard function and gain in lifetime value for each of the plurality of new customers,/a determining module.../means for determining...(Page 3, paragraph 2, lines 1-3, paragraph 3, lines 1-3 and page 4, paragraph 5, lines 6-9, [changing the policy]);

As per claims 3, 18, 33 and 48, the Bank Marketing International article discloses:

Analyzing the shape of the hazard function generated for each of the plurality of new customers, (Page 2, paragraph 14, lines 1-2, paragraph 15, lines 1-2, [where the hazard function is represented through the lifetime in the equation]);

And specifying a set of marketing techniques based on the shape of the hazard function...(Page 3, paragraph 2, line 1-3 and paragraph 3, lines 1-3, [where the marketing techniques are represented by the bank changing its policy through analysis of the equation]).

As per claims 4, 19, 34 and 49, the Bank Marketing International article discloses:

Specifying a set of incentives offered to the plurality of new customers based on the gain in lifetime value, (Page 4, paragraph 5, lines 6-9, [represented by offering a lower price]).

As per claims 13, 28, 43 and 58, the Bank Marketing International article discloses:

Determining that value of the set of incentives offered to each of the plurality of new customers does not exceed the gain in lifetime value, (page 4, paragraph 5, lines 6-9 [represented by offering a lower price, or dropping a charge by knowing the lifetime value and still making a good return])).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 5, 6, 14, 15, 17, 20, 21, 29, 30, 32, 35, 36, 44, 45, 47, 50, 51, 59, 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over by the Bank Marketing International article entitled "Are your customers profitable?", and further in view of Sanders (6,411, 936) in further view of Hutton, J.L., "Choice of parametric accelerated life and proportional hazards models for survival data: asymptotic results"..

As per claims 2, 5, 17, 20, 32, 35, 47, 50, Bank Marketing International discloses:

Calculating a lifetime value/calculating the gain in lifetime value...(Page 2, paragraph 11, lines 1-3, paragraph 12, lines 1-3, Page 3, paragraph 10, lines 1-3, Page 4, paragraph 10, lines 1-3, [looking at estimated customer lifetime value, where the value is calculated from attributes such as profitability]);

The Bank Marketing International article fails to disclose the following, however Sanders discloses:

based on contract terms and revenue generated for each of the plurality of new

Art Unit: 3623

customers/considering a new contract period/determining...there is no effect on churn of a contract expiration, (Col. 11, line 44-Col. 12, line 10, [ determining lead generation by using contract value])).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to use the contract terms and revenue to calculate the lifetime value with the motivation of determining which customers are bound to an agreement for specified periods of time and using this information to truly calculate how long a customer will be a customer and how much revenue that customer can pull in for that determined time.

Both the Bank Marketing International article and Sanders fail to disclose the following, however Hutton, J.L. discloses:

based on the shape of the hazard function, (Abstract, lines 1-18, [represented by results for the shape of the hazard function])).

It would have been obvious to one of ordinary skill at the time of the applicant's invention to base the lifetime value on the shape of the hazard function with the motivation of supplying a visual form for determining this lifetime value information.

As per claims 6, 21, 36, 51, the Bank Marketing International article discloses:

Taking no further steps to deter churn, (Page 2, paragraph 10, line 2, [finding alternative banking arrangements])).

As per claims 14, 15, 29, 30, 44, 45, 59, 60, the Bank Marketing International article fails to disclose the following, however Sanders discloses:



Clustering all of the hazard functions for each of the plurality of new customers so that hazard functions with similar shapes can be grouped together/determining, based on the overall shape of the clustered hazard functions, what retention efforts to take to keep a new customer, (Col. 17, lines 48-52, [represented by clusters of elemental information]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to cluster all of the hazard functions for each of the plurality of new customers with the motivation of determining the average solution for keeping a customer.

8. Claims 7, 8, 9, 10, 11, 12, 22, 23, 24, 25, 26, 27, 37, 38, 39, 40, 41, 42, 52, 53, 54, 55, 56, 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over by the Bank Marketing International article entitled "Are your customers profitable?", and further in view of Hutton, J.L., "Choice of parametric accelerated life and proportional hazards models for survival data: asymptotic results" and further in view of Sanders (6,411,936).

As per claims 7, 9, 22, 24, 37, 39, 52, 54, the Bank Marketing International article fails to disclose the following, however Hutton, J.L. discloses:

determining, based on the shape of the hazard function, that there is a small increase in probability of churn...with an elevated post-expiration churn, /determining, based on the shape of the hazard function, that there is a large spike indicating high probability of churn...and low probability of churn thereafter, (Abstract, lines 1-18, represented by results for the shape of the hazard function]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to base the lifetime value on the shape of the hazard function with the motivation of supplying a visual form for determining this lifetime value information.

Both Bank Marketing International and Hutton, J.L. fail to disclose the following, however Sanders discloses:

at contract expiration...(Col. 11, lines 44-52, [represented by the size of contracts]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have a contract expiration with the motivation of determining how long a customer will be a customer.

As per claims 8, 10, 11, 12, 23, 38, 25, 26, 27, 40, 41, 42, 53, 55, 57, both Bank Marketing International and Hutton, J.L. fail to disclose the following, however Sanders discloses:

Having a moderate pre-expiration effort where new contracts or continued contracts are the goal/ concentrating effort on pre-expiration of contract where a contract renewal may not be required/having high intensity pre-expiration effort with continued competitive offers to maintain customer/determining, based on the shape of the hazard function, that there is a large increase in probability of churn at expiration with high and increasing post-expiration probability of churn, (Col. 11, line 66-Col. 12, line 6, [represented by yielding to a group of low profit contracts that are listed as a separate category]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to produce new or continued contracts with the motivation of keeping dedicated customers.

**Conclusion**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Akiba K Robinson-Boyce whose telephone number is 703-305-1340. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 703-305-9643. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7238 [After final communications, labeled "Box AF"], 703-746-7239 [Official Communications], and 703-746-7150 [Informal/Draft Communications, labeled "PROPOSED" or "DRAFT"].

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

QRB  
A. R. B.  
June 5, 2003

TARIQ R. HAFIZ  
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